

ABSTRACT OF THE INVENTION

The present invention provides catheter apparatus and catheterization methodology for generating an arteriovenous fistula or a veno-venous fistula on-demand between closely associated blood vessels and at a chosen anatomic site in-vivo. The catheter apparatus is preferably employed in pairs, each catheter of the pair being suitable for percutaneous introduction into and extension through a blood vessel. The catheterization methodology employs the catheter apparatus preferably in conjunction with conventional radiological techniques in order to place, verify, and confirm a proper alignment, orientation, and positioning for the catheters in-vivo prior to activating the perforation means for generating a fistula.. The invention permits the generation of arteriovenous fistulae and veno-venous fistulae anatomically anywhere in the vascular system of a patient; nevertheless, the invention is most desirably employed in the peripheral vascular system as exists in the extremities of the body to aid in the treatment of the patient under a variety of different medical ailments and pathologies.